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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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25 YEAR RE-REVIEW

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STATE	x	ARMY	x	NAVY	x	AIR	x	FBI		AEC					

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PART II - REPORT

(i) ING. BUERO STATESNY

[redacted]

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This Buero was the WALTER Design Section of the ING. BUERO GLUECKAUF in BLANKENBURG/HARZ.

[redacted]

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(ii) LENINGRAD 1948

The German team arrived in LENINGRAD after a trip of two weeks. For the first fortnight they lived in the NEVA Hotel, LENINGRAD: then they were allotted flats in the KUSNETSOVSKYA ULITSA.

[redacted]

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In August 1948 work was commenced in an office, the ground floor of the house where the team lived. The Test Station and Work Shop was in a shed in an old shipyard (identified but not by name as the SUDOMEKH Yard). The executive of this yard was in a house on the premises where the former directpr used to live. In this house were Russian administration offices, drawing offices and a technical laboratory. The team on arrival in LENINGRAD found that their drawings had arrived already.

The first German arrivals at the shipyard were Construction Engineer Josef NATHAUS and Foreman Paul DETTKE. Their first journey to work was made in a car with the blinds drawn; on subsequent occasions and after protest this precaution was not taken. On arrival they found hardly any tools and the Russians who were there knew little of what they had to do. [redacted] it appeared that experiments in WALTER systems had already been going on. In a bunker were [redacted]

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broken and used parts which obviously fitted into a WALTER scheme. There was a section of a submarine hull with pressure tanks. Cases were found which contained decomposition chamber, 3-fuel pump (referred to hereafter as DSP = DREISTOFFPUMPE) and odd fittings. These cased parts had not been used.

DETTKE and NATHAUS were given the job of putting the parts together with the help of Russian personnel. Dr. STATESNY was in charge.

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In November 1948 the Russians were trying to construct a pipeline for concentrated hydrogen peroxide (hereafter referred to as T-STOFF) and used a lot of material without success. STATESNY

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then called in and did the job.

(iii) Development of WALTER Machinery from August 1948 until January 1951

All the testing was carried on in this same shipyard. There were six tests all together and were as follows:-

First Varient

The first test of the decomposition chamber, 4-fuel controller (hereafter called VSR = VIERSTOFFREGLER) and the DSP. The exhaust was discharged into the NEVA. A simple bunker and trench had been thrown up on the bank of the River and the T-STOFF was fed direct to the decomposition chamber in this bunker. Water and oil were fed back. The test was not a success. The exhaust pipe had not been laid in a direct line and was not securely fastened down, so that it whipped about in an alarming way when the test started. The catalyst stones were also a failure; they broke or stuck together, or else crumbled away. The construction of T-STOFF was too high (believed to be about 90%). A white film or layer accumulated on the outside of the decomposition chamber and it was decided that this was due to magnesium in the pipeline. A layer appeared on these parts where the T-STOFF dropped on to the decomposition chamber. There was great difficulty in sealing the joints in the pipes as they were in the open and expanded and contracted with the weather.

After this first test slight improvements were made to the DSP and to the lubrication system. Also a stabilising medium was added to the T-STOFF and the concentration was reduced to 80%. At first this letting down was done by means of pouring in water and mixing with a hand pump. Later an agitator was installed for the job. (Right up to the end of the work, however, it was not possible to get delivery of T-STOFF at the right concentration.) Gassing had also been noted in the T-STOFF tank. This was due to equipment which had not been properly tested before acceptance. On this account DETTKE was called in front of the NKVD and accused of sabotage, but he maintained that when he tested the parts they were in order and there must be some other reason.

Second Varient

Testing the decomposition and combustion chambers in the bunker between February 1949 and June 1949.

From the elevated tanks for T-STOFF feed water and light oil the three fuels flowed via reducing valves to the DSP. This, provided with its own lubricating cycle, pumped the three fuels to the decomposer and the combustion chamber via a filter, a VSR and a cut-off. The steam was exhausted into the open air through a condenser.

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During this series of tests the spiral heater in the combustion chamber burnt out; the lower combustion chamber connexion was so badly damaged by contortion and dust deposits that the parts had to be exchanged for new ones. This damage was believed to be due in the main to careless operation of the plant. As a result of this accident the heater was shortened to two thirds of its original length. At the same time as the heater was damaged the lining of the combustion chamber burnt through opposite the water inlet; this was in a corner not reached by the circulating water. For this reason the water inlet connecting pipe was attached at an angle and baffle plates were welded on to the lining of the combustion chamber. Further difficulties noted were a leak in the triple feed cut-off and distortion in the VSR.

Parallel with the tests carried out on this Second Varient the condenser system was fitted into the hull.

Third Varient

Testing the Condenser July to December 1949.

By means of an insulated steam pipe steam generated in the bunker was now led to the condenser through a Y connection fitted to the jet compensators of the condenser. The exhaust gases were then passed into the open through a throttle valve. A condensate pump, provided with its own (temporary) lubricating system, drew the water from the condensate controller and forced it into the condenser injection pipe.

The first test had to be broken off almost immediately, as nearly all the water was drawn out of the condenser. This was due to the fact that the gas and water could not be properly separated: the water stopped and the pump failed. The steam then passed through the condenser without being cooled and took more and more water with it. In order to check this defect, gas extraction pipes were connected to the top of the condensate cooler in line with the cooler's deflection plates. These pipes joined to a collector pipe led to the condenser.

Additionally, the number of outlets in the jet compensators was increased and so arranged that the jets of water worked against the incoming steam.

In order to test out a more simple and reliable excess water regulation, a pipe for drawing off the condensate was constructed. The upper end of this pipe was to project into the waste gas pipe, in which the pressure is lower than in the condenser, so that the excess water is carried away by the exhaust gas. The lower end of the pipe was to finish level with the average water line in the condenser. It was found that this plan was simpler than the complicated float regulation and was efficient.

To counterbalance the additional capacity of the jet compensators, the diameter of the injection pipe was reduced. This maintained the absolute pressure for injection and prevented the out-flowing gas from taking the injection water with it. When these alterations had been carried out the condenser worked satisfactorily.

Fourth Varient

Testing the Turbine with an outside Steam Supply.

It was originally planned to feed the turbine mounted in the hull from a steam supply taken through a long pipeline from a ship anchored nearby. Owing to lack of time and more probably due to assembly

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difficulties, this idea was dropped and the test was carried out in a turbine factory. The turbine was light tested in the hull with compressed air and it was found that there was vibration caused by unsatisfactory seating of the shaft bearings and of the turbine coupling. They had to be rebuilt.

Fifth Varient

Testing the Turbine with steam generation plant in the Hull from February to July 1950.

While the third and fourth series of tests were being carried out, the DSP, the VSR, the triple feed switch, together with all their fittings and pipelines, as well as the foundation work and the suspension for the decomposition and combustion chambers had been installed. The decomposition chamber and the combustion chamber were now mounted after the insulation originally planned for them had been considerably simplified. Further, a water brake was lined up and calibrated; for this a new balance had been designed and made.

During these tests the turbine was so badly damaged that it had to be dismantled and sent to the turbine factory for repair. Because the catalyser was still unsatisfactory, dust had penetrated as far as the turbine, so that its bearings had become damaged. Some of the turbine plates were buckled, stripped, distorted and tarnished. [redacted] this was also due probably to inexpert operation of the plant. He thought that the temperature was too high. 25X1

Sixth Varient

January 1952

For this test the whole section of the shed was laid out as the Engine Room of Type 26 Submarine. Outside the hull were the water brake and the T-STOFF tank. The water brake and gear box were as in the Fifth Varient.

The Russians had decided that for this test there would be an intermediate unit built in before the turbine. This was to be a filter containing rings made of Remanit (a chrome nickel alloy): this was in order to prevent the dust entering the turbine. STATESNY and MENSEN said there was danger in this and refused to have anything to do with a test which incorporated such a novelty. As an outcome they were forbidden to be present at the test and the Russians conducted this Sixth Varient by themselves with no German help. [redacted] 25X1

[redacted] it was learned that the test had been unsatisfactory. When the machinery was first started up there was a terrific noise and several parts [redacted] did not run properly. [redacted] three months later, [redacted] most of those difficulties had been eliminated. [redacted] 25X1 25X1

(iv) T-STOFF

This was stored in a tank outside in the open air. The tank stood in a concrete trough of water and was itself sprayed with water. Once the tank tore away from its fastening as the wire ropes were weaker than those recommended on the drawings. From this tank the T-STOFF was pumped to an elevated tank and thence fed to DSP.

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T-STOFF was brought to the yard by road in special containers, Russian built. [redacted] 25X1
When they arrived the fuel was unloaded by means of the pump which was ordinarily used for transferring T-STOFF from the storage tank to the elevating tank. The piping for the unloading was of V2a steel. The unloaders were equipped with plastic protective clothing (Nipolin). There were trousers, high boots, jackets, gloves and goggles. At first nothing was provided but DETTKE and NATHAUS insisted on these precautions. [redacted] 25X1

On delivery the T-STOFF was of too high concentration and was let down from 90% to 80%. Distilled water was added while the T-STOFF was agitated by means of a hand pump. Afterwards a rotary stirrer was devised.

The rest of the pipe was of VINIDUR (plastic) and was waxed. The steel pipes were also pickled and both these processes had to be done on the spot by the Germans after the Russians had spoiled most of the piping in their experiments. DETTKE, NATHAUS, STATSNY, KRAGE and Guenther DETTKE were given premiums for this work.

(v) Turbine

The BRUECKNER-KARNIS Turbine was sent away first of all for test with ordinary steam. Later when the turbine was tested with high pressure steam the blades were damaged due to faulty feed. It was believed that the dust extractor was too small (see Fifth Varient).

(vi) Gearing

It was intended to use a German gear aggregate but finally a set was made in LENINGRAD in a factory near the yard on the bank of the Neva. [redacted] 25X1

(vii) Liquid Oxygen

Part of the hall in which the team worked was blocked off by a partition which reached right to the roof. [redacted] 25X1
experiments with liquid oxygen were conducted in this shut off part. 25X1
[redacted]

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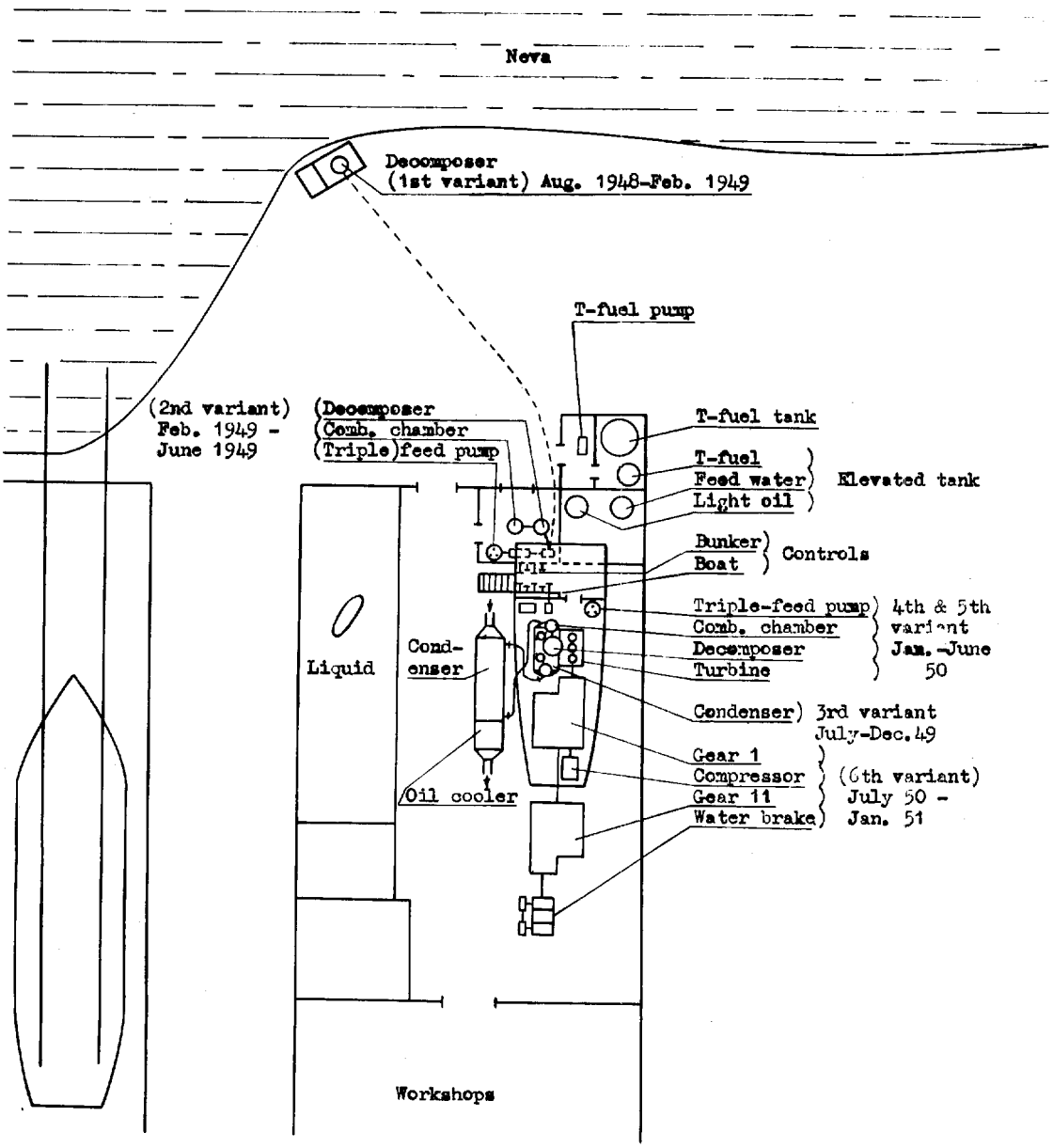
TEST BED LAYOUT FOR WALTER PROPULSION MACHINERY



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